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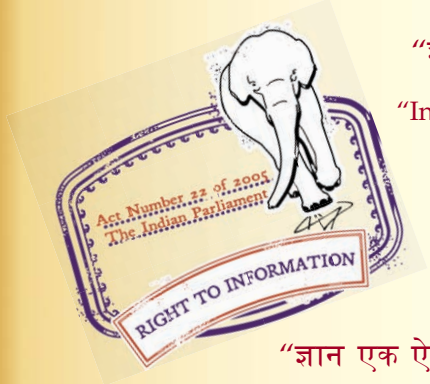
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IS 6729 (1972): wooden paddles [CED 9: Timber and Timber Stores]

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Indian Standard

SPECIFICATION FOR WOODEN PADDLES

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SPECIFICATION FOR WOODEN PADDLES

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Indian Standard

SPECIFICATION FOR WOODEN PADDLES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 2 December 1972, after the draft finalized by the Timber Stores Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 With the increasing navigational activities in the country a large volume of trade has developed in paddles for small boats and conoes. It is found that quality finish and workmanship is at present varying considerably. This standard is intended to provide general guidance on the species of wood, workmanship to ensure satisfactory service to the user and assist the suppliers by eliminating avoidable variations in demand and production.

0.3 In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS:2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

---

1. SCOPE

1.1 This standard covers the general requirements, dimensions and tests for paddles used with small boats and conoes.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS: 707-1968† and the following shall apply.

*Rules for rounding off numerical values (*revised*).

†Glossary of terms applicable to timber and timber products (*first revision*).

2.1.1 *Paddle* — A short handle wooden spade, flat or spoon shaped used for propelling canoes or small boats, with light loads, used with the rollers, or attached as a broad end of the oars.

2.1.2 *Shaped Paddle* — This is either a single piece of wood or of composite wood with one of its ends broad faced and curved in one or two planes as required.

2.1.3 *Flat Paddle* — These shall be made of a round wooden handle with wood blades of required size and shape at one of its ends.

2.1.4 *Shaft* — Handle of the paddle.

3. MATERIALS

3.1 Species of Timber — The species of timber used for the manufacture of paddles shall be any of the timbers specified in Appendix A. The guiding principles for selection of timber for paddles shall be high strength, shock resistant and light weight. The wood shall be of a type which absorbs very little moisture and shall be buoyant.

3.2 Mild Steel — Mild steel used for the manufacture of chain shall conform to IS : 1977-1969*.

4. REQUIREMENTS OF BLANKS

4.1 Dimensions — Blanks selected for the preparation of paddles shall be of such dimensions which would permit normal wood working operations to bring them to the required size and shape (*see* Fig. 1 and 2) in one piece.

4.2 Defects — The blanks selected for the manufacture of paddles shall be well seasoned to a moisture content not exceeding 15 percent and the inclination of grain shall not exceed 1 in 20. The blanks shall be free from defects, such as pin-holes, centre-heart (pith), sapwood, any kind of decay (rot), insect attack, brashness, splits except hair splits, cracks, hollow-heart and knots excepting those permitted in the finished paddles under **7**.

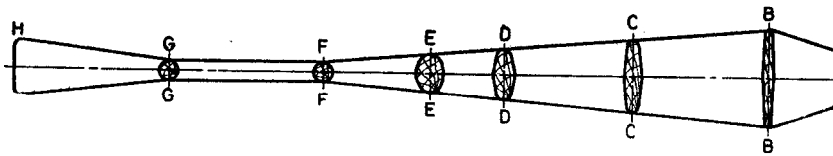
5. SHAPE AND DIMENSIONS

5.1 The shape and dimensions of the single piece or two piece paddle shall generally conform to the design indicated in Fig. 1 and Fig. 2 respectively. Permissible tolerances in dimensions shall be as given under **6**.

6. TOLERANCES

6.1 The tolerance in the length of the paddle shall be ± 2 cm.

*Specification for structural steel (ordinary quality) (*first revision*).



Length of Paddle = 1 200 mm

Cross-Section of Paddle		Length Between Cross-Sections	
	mm		mm
A	75 × 6	*AB*	100
B	140 × 15	*BC*	200
C	110 × 26·5	*CD*	188
D	76·5 × 33	*DE*	107
E	55 × 40	*EF*	155
F	28 dia		
G	28 dia	*FG*	225
H	75 dia	*GH*	225

FIG. 1 CONOE TYPE SINGLE PIECE PADDLE

6.2 The tolerances on the diameter of the shaft of the paddle shall be ±3 mm.

6.3 The tolerances on the width of the working face at the end of the blade shall be ± 2 mm.

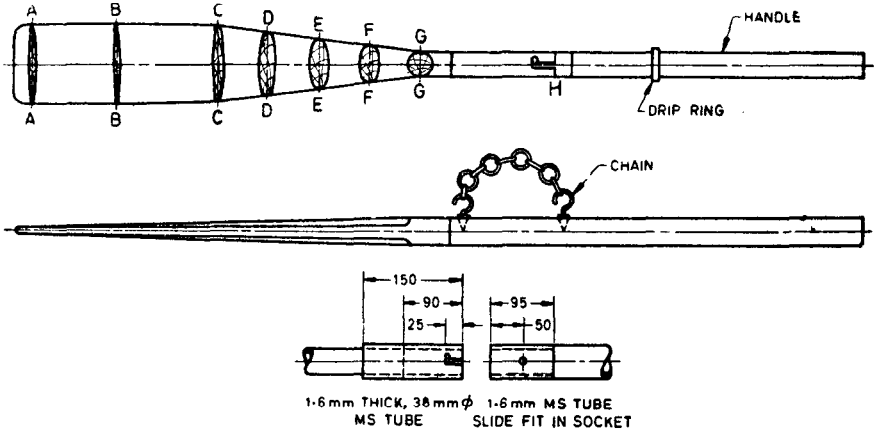
7. PERMISSIBLE DEFECTS IN THE FINISHED PADDLE

7.1 No defects other than those mentioned under **7.1.1** and **7.1.2** shall be permitted in the finished paddle. Defects shall be measured in accordance with IS : 3364-1965*.

7.1.1 *Sound Knot* — Only two knots of 6 mm dia (pin knots) tightly interwoven with the rest of the fibres in any part of the paddle except at the junction of shaft and blade shall be permissible.

7.1.2 No chipping or delamination shall be permitted in any portion of the finished paddle.

*Methods of measurement and evaluation of defects in timber.



VIEW OF LOCKING ARRANGEMENT

Total Length of the Handle = 775 mm

Cross-Section of the Handle = 33 mm dia

Length of the Paddle = 800 mm

Cross-Section of Paddle		Length Between Cross-Sections	
	mm		mm
A	118 × 6	*AA*	25
B	118 × 16	*AB*	125
C	112 × 25	*BC*	150
D	100 × 27·5	*CD*	75
E	75 × 30	*DE*	75
F	50 × 33	*EF*	75
G	36 mm dia	*FG*	75
H	36 mm dia	*GH*	200

FIG. 2 TWO PIECE PADDLE

8. FINISHING

8.1 All paddles shall be finished reasonably smooth. The paddle shall be painted with clear cellulose lacqure.

9. TESTS

9.1 The paddle shall be subjected to tests given under **9.2** to **9.6.**

9.1.1 All visible damages, chips, cracks, delamination, warping, etc, noticed after each test shall be recorded in the *pro forma* given in Appendix B.

9.1.2 Paddles which fail to meet the requirements of the tests shall be rejected.

9.2 Drop Test — Paddles shall be held horizontally and dropped from a height of 1·25 m on a hard surface, five times continuously.

9.2.1 At the end of the test, there shall be no visible damage, chip or crack or delamination.

9.3 Immersion Test — Paddles shall be placed in water at a temperature of 27 ± 1°C such that their blades are completely immersed up to the point of their junction with the shaft, for a period of 24 h and dried again for 24 h. The process shall be repeated three times consecutively.

9.3.1 At the end of the test there shall be no visible damage or warping or increase in weight.

9.4 Strength Test — Paddle shall be held firmly at the end of its shaft as a cantilever over a grip of 300 mm such that the blade is horizontal to the ground with its working face on top (Fig. 3). A load of 50 kg shall be placed at the centre of the blade for a period of at least 30 min and then removed.

9.4.1 At the end of the test, there shall be no visible damage or permanent deformation at any portion of the paddle.

9.5 Vibration Test — The paddle shall be held firmly as cantilever, as described in **9.4** for strength test (Fig. 3). The blade shall be pressed down by hand to a depth of one fifteenth of the length of the paddle and suddenly released.

9.5.1 At the end of the test there shall be no visible damage or permanent deformation. The vibration shall subside within 30 seconds.

9.6 Impact Test — The paddle shall be held firmly as cantilever at the shaft as described in **9.4** for strength test (Fig. 3). A leather bag filled with sand of 500 g in weight, or a wooden roller of the same weight with edges rounded off, shall be dropped three times on the blade from a height of one metre from the centre of the blade.

9.6.1 There shall be no visible damage or permanent deformation or indentation on any portion of the paddle.

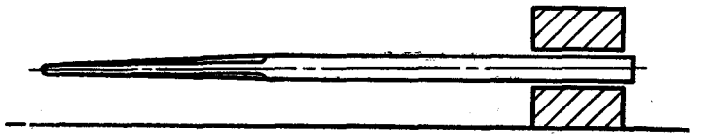


FIG. 3 METHOD OF HOLDING THE PADDLE FOR STRENGTH VIBRATION AND IMPACT TESTS

10. MARKING

10.1 Each paddle shall be legibly and indelibly marked with the following information:

a) Manufacturers' identification mark,
b) Month and year of manufacture, and
c) Species of timber by symbol.

10.1.1 The paddle may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

APPENDIX A

(*Clause* 3.1)

TIMBER SPECIES CONSIDERED SUITABLE FOR PADDLES

BOTANICAL NAME	TRADE NAME	ABBREVIATION
Artocarpus hirsutus Lamk.	Aini	AIN
Fraxinus spp.	Ash	ASH
Lagerstroemia lanceolata Wall	Benteak	BEN
Dipterocarpus spp.	Gurjan	GUR
Terminalia bialata Steud (sapwood)	White Chuglam	WCH
Grewia spp.	Dhaman	DHA
Thespesis populnea	Thendi	BHE
Dalbergia sissoo Roxb.	Sissoo	SIS
Lagerstroemia parviflora Roxb.	Lendi	LEN
Morus spp. (other than Morus laevigata wall.)	Malberry	MUL
Tectona grandis linn. f.	Teak	TEA
Fagara budrunga Roxb. [Syn. Zanthoxylum rhetsa (Roxb.) DC.]	Mullilam	MUI

APPENDIX B

(*Clause* 9.1.1)

TEST SHEET FOR RECORDING RESULTS OF A PADDLE UNDER DIFFERENT TESTS

Name of manufacturer.....

Consignment No. .....

Laboratory No. .....

Moisture percent.....
(as indicated by the moisture meter)

Year and month of manufacture.....

Species.....

Identification mark on the paddle.....

General remarks.....

(Regarding finish dimensions).....

Tolerances (6).....

.....

Test	Observations
Drop test (**9.2**)	
Immersion test (**9.3**)	
Strength test (**9.4**)	
Vibration test (**9.5**)	
Impact test (**9.6**)	
General remarks or performance	

Signature and stamp of authority

Date and place

INDIAN STANDARDS

ON

TIMBER STORES

IS:

620-1965	General requirements for wooden tool handles (*second revision*)
2133-1962	Wooden tent pins
2891-1964	Wooden handles for felling axes and hand axes
2892-1964	Wooden handles for picks and beaters
2893-1964	Wooden handles for adzes
2894-1965	Wooden handles for wood working chisels and gauges
2895-1965	Wooden handles for engineers' files
2896-1965	Wooden handles for carpenters' augers
2897-1965	Wooden handles for shovels
2922-1964	Wooden tent mallets
3053-1965	Cane baskets for general purposes
3084-1964	Pencil slats
3386-1965	Wooden fence posts
3805-1966	Pent top wooden cases
3806-1966	Wooden beaters
4435-1967	Wooden ladders
4650-1968	Anvil blocks
4953-1968	Wooden handles for hand hammers

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